ABSTRACT OF THE DISCLOSURE

The present invention relates to parallel loop transformation methods for race detection during an execution of parallel programs which is one of the debugging methods for parallel loop programs. Using the information obtained from a static analysis of parallel loop bodies, the monitoring time for race detection is improved by transforming the loop bodies in order for only the necessary iterations for race detection can be dynamically selected during the execution. Specifically, in comparison to the conventional monitoring methods which typically consumes a long time since they monitor the full iterations for each parallel loop in parallel loop programs, by monitoring two times of the execution paths irrespective of the parallelism of each parallel loop, the present invention can significantly reduce the execution time. As a result, the present invention allows a convenient race detection of parallel loop programs therefore making the race detection more practical.

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